

Depiction of AI in education in Neal Stephenson's Novel *The Dimond Age*

Mr. Pujari B.B. Research Student, Shivaji University, Kolhapur

Dr. Bhambar S.B. Principal & Associate Professor, Bhai Tukaram Kolekar College, Nesari

Tal: Gadhinglaj Dist: Kolhapur, 416504 Maharashtra, India

Dr. Vrunda Lokhande Assistant Professor in English, D.R.K. College of Commerce,
Kolhapur. Maharashtra.

Abstract:

*Neal Stephenson is an American science fiction writer who wrote cyberpunk novels that feature computer technology prominently. He depicts computer technology that contributes positively to the development of human beings and society in general. The present research paper discusses how Neal Stephenson in his science fiction novel *The Dimond Age* (1995) depicted an AI-powered Primer which is a computer booklet designed to impart education, especially for the high-class society. Neal Stephenson published this book in 1995 during that period AI was still in the developing stage. However, the AI technology in the present novel is at an advanced stage in that it delivers learner-centric specific lessons and ensures proper learning when it is in use. This paper traces how Neal Stephenson presented the idea of the Primer with its Artificial Intelligence and Machine Learning features.*

Key Words: Neal Stephenson, Artificial Intelligence, Machine Learning, the Primer, Education

Introduction:

The English computer scientist Alan Turing is credited for laying the foundation for computing technology, Artificial Intelligence, and Machine Learning. Alan Turing wanted machines to imitate humans and help them in their endeavors making life more comfortable. However, the actual development of AI and Machine Learning started in 1960. According to Oxford Learner's Dictionary, Artificial Intelligence is "the study and development of computer system that can copy intelligent human behavior." (<https://11nq.com/88yD9>) whereas Machine Learning is defined in the same dictionary as "a type of artificial intelligence in which computers use huge amounts of data to learn how to do tasks rather than being programmed to do them." (<https://11nq.com/UIsaW>). Neal Stephenson while depicting the technology of the *Primer* has incorporated Artificial Intelligence and Machine Learning in it.

The Dimond Age (1995):

The Diamond Age (1995) is a science fiction. It deals with the role of science and technology in the educational development of children. The novel is set in near future with Neo-Victorian society. Nell is the central character in the story. She is *thete* a lower-class tribe in society. Nell has an elder brother called Harv who is a thief stealing valuables from the rich. Nell was staying with her mother and brother in the slums of the Leased Territory and poverty and the lack of education were the major reasons behind it. Harv stole the *Primer* from John Percival Hackworth a professional engineer who was assigned the task of designing the unique educational purpose product known as the *Primar* by Lord Finkle-McGraw for his granddaughter Princess Charlotte. Lord Finkle McGraw was dissatisfied with the way schools delivered education to the younger generation. He wanted his granddaughter would be raised differently so far as schooling is considered. So, he asked Mr. Hackworth to design the *Primer* which was nothing but a computer tab equipped with Artificial Intelligence and Machin Learning.

Mr. Hackworth successfully designed the *Primer* and produced it. While assigning the task to Mr. Hackworth, Lord Finkel McGraw had made it clear that the *Primer* should be a unique one and only one of its kind. The *Primer* was very costly and it would be afforded only for the Lords like Finkle McGraw. Mr. Hackworth compiled the *Primer* with unique features such as a Universal Voice Recognition Interface, different colors, and sensors. However, Hackworth was a bit concerned about the crime that he had committed. The crime was producing a copy of the *Primer* for his daughter Fiona who was of the same age as Princess Charlotte and Nell were.

Neal Stephenson highlighted the desire of availing the best education for the children here through the act of Hackworth who illegally produced a second, secret copy of the *Primer* for his daughter Fiona. Dr. X was his accomplice in this act of Hackworth. But this remained as the dream for Hackworth as he was heading Home from Dr. X's Laboratory, he met with the gang of boys among them was Harv who snatched the *Primer* from Hackworth. Harv brought a copy of the *Primer* and hid it at home. Later he gave it to Nell as a gift. Nell was initially unaware of the functioning of the *Primer* and played with it as if it were a toy. After some days, the *Primer* started interacting with her and unfolding the ocean of knowledge in front of poor Nell. Nell operated it cautiously and later she started learning unbelievable lessons from it. The *Primer* has been credited for educating Nell and transforming her into the polished individual in the Neo-Victorian society that Neal Stephenson portrayed in this novel. The *Primer* helped Nell know about different stories that were both good and evil. She learned positive things from all stories such as not doing evil to anyone and spreading love towards all.

Neal Stephenson's *The Dimond Age* explores the importance of education in the lives of three girls Nell, Fiona, and Elizabeth belonging to lower-, middle- and upper-class strata in the neo-Victorian society respectively. However, the *Primer* influenced them equally and brought their level of intelligence to a higher level. The takeaway is Education can change the individual in the right direction thereby changing society. The novel the role of technology in facilitating education to all the needy. In the second part of the novel, Nell continued her education and was adopted by Constable Moore, who hailed from the Dovetail community. There, she grew into a responsible young woman and embraced the community's manners and etiquette.

The Primer:

Neal Stephenson presented the most important technology through the *Primer* in the novel. The *Primer* was nothing but a computer tab equipped with Artificial Intelligence and machine learning. The *Primer* has unique features such as a Universal Voice Recognition Interface, different colors, and sensors. Hackworth while handing it over to Lord McGraw explains it's working as follows:

“...it sees and hears everything in its vicinity... At the moment, it's looking for a small female. As soon as a little girl picks it up and opens the front cover for the first time, it will imprint that child's face and voice into its memory.” (*The Dimond Age*,106)

The *Primer* was equipped with technologies like Machine Learning and Artificial intelligence. Once it came into contact with a girl, it mapped and learned all the aspects of the girl's personality and accordingly started delivering the lessons. Hackworth explains further:

“And thenceforth it will see all events and persons in relation to that girl, using her datum from which to chart a psychological terrain, as it were. Maintenance of that

terrain is one of the book's primary processes. Whenever the child uses the book, then, it will perform a sort of dynamic mapping from the database onto her particular terrain." (*The Dimond Age*,106)

The *Primer* was assisted with the battery supply with the inbuilt batteries. The book had a screen-like mediatron (Television) along with the feature of touch sensibility. The standard color scheme was used in it. The digital book can be controlled with the Universal Voice Recognition Interface. It can take command with voice and touch and can respond to the emotions of users as there were nano receptors for galvanic skin response, pulse respiration, and so on. Hackworth after working hard in the laboratory finally was successful in compiling the *Primer*. The book was programmed according to the need in which all the educational content was uploaded. The final product looked like a book.

With the *Primer*, a new dawn came in Nell's life as her education journey started and the role of the ractor known as Mirinda was enormous in the upbringing of Nell. The *Primer* exposed several stories of good and evil to Nell. Mirinda a presenter in the *Primer* acted as her foster mother introducing Nell to different landscapes, vegetation, the sea, forest, animals, people, manners, and etiquette. Though Mirinda was present digitally in the *Primer*, she exerted greater influence over Nell. Mirinda through the *Primer* narrated various stories about Princess Nell, her origin, Princes Nell and Harv at Dark Castle, Dinosaur's Tale, Dinosaur and Dojo, etc.

Conclusion:

Neal Stephenson has imagined a technology in the *Primer* that is like today's computer tablets such as iPad and Samsung Tab which are being used by children for education purposes. The *Primer* depicted in the novel manifests today's technology of Artificial Intelligence and Machine Learning used for education. The *Primer* is a unique computer tablet that facilitates different customized lessons for users. Stephenson shows in the novel how Nell gets educated by the *Primer* without any human assistance with the help of the *Primer*.

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